Statistics
Ch. 4 Test REVIEW

Name: KEY
Date: _____

1) Match each description with its term. You may end up using a term from the pool more than once or not at all. (2points each)

| Word Pool | | |
|---|---|---|
| Mean | Standard Deviation | IQR (Interquartile Range) |
| Median | Range | Third quartile |
| Mode | | First quartile |

median — a good choice for describing the center of skewed data

range — compare the extremes of the data

St. Dev — summarizes how far each data value is from the average of the data

median — splits a histogram into halves/is the middle of the histogram

mean — describes the center of symmetric data better than it describes the center of skewed data

IQR — summarizes the spread of the central 50% of the data

Q1 — the center of the lower half of the data

mode — where the peaks of a histogram are

2) Choose one term from the Word Pool. Tell why that term is important to use when analyzing data using statistics. (3 points)

Statistics
Ch. 4 Test REVIEW

3) Here are the ages of the last 15 Presidents of the United States at their first inauguration, listed from youngest to oldest. Find the five-number summary of this data set and describe what each number tells you about the data. (1point for each value; 2 points for each description)

43, 46, 47, 51, 51, 52, 54, 54, 55, 56, 60, 61, 62, 64, 69

($Q_1$ = 51, M = 54, $Q_3$ = 61)

| 5 Number Summary | Value | Describe in Context |
|---|---|---|
| Minimum | 43 | tells the age of the youngest President |
| First Quartile | 51 | tells the age of the person at the 25th percentile |
| Median | 54 | tells the age of the person at the 50th percentile |
| Third Quartile | 61 | tells the age of the person at the 75th percentile |
| Maximum | 69 | tells the age of the oldest |

4) Find the mean and standard deviation of these ages. (2 points total)

$\bar{x} = 55.87$ yrs. old

$S_x = 6.97$ yrs.

5) Which would best describe the center and spread of this data set: <u>mean and standard deviation</u> OR <u>median and IQR</u>. Justify your decision using facts. It might help to draw a dotplot or histogram. (5 points for an *excellent* answer and justification)

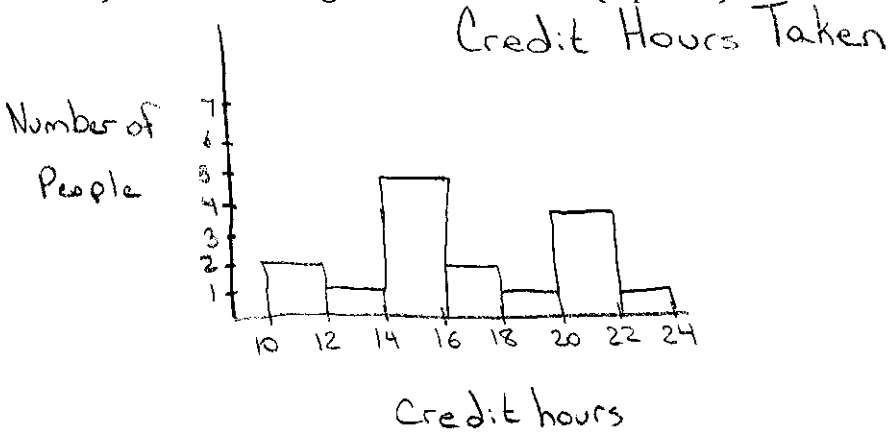
Statistics
Ch. 4 Test REVIEW

**Use the information below to answer questions 5 – 10.**

A survey conducted in a college intro Statistics class asked students about the number of credit hours they were taking that quarter. The number of credit hours for a random sample of 16 students is given in the table below.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | 10 | 12 | 14 | 15 | 15 | 15 | 15 |
| 17 | 17 | 19 | 20 | 20 | 20 | 20 | 22 |

6) Sketch a histogram of these data. (4 points)




7) Find the mean and standard deviation for the number of credit hours. (2 points total)

$\bar{x} = 17.1$ credit hours

$s_x = 3.39$ credit hours

8) Find the median and IQR for the number of credit hours. (2 points total)

$M = 17$ credit hours

$IQR = 20 - 15 = 5$ credit hours

9) Is it more appropriate to use the mean and standard deviation or the median and IQR to summarize these data? Explain. (5 points for an *excellent* answer and justification)

(The data distribution is reasonably symmetric, and the mean & median are similar, so either choice is fine.)

Statistics
Ch. 4 Test REVIEW

10) Suppose that in the data set above the student listed as taking 22 credit hours was actually taking 28 credit hours instead (so we would replace the 22 in the data set with 28). State whether changing the number of credit hours for that student would make each of the following summary statistics increase, decrease, or stay about the same.

a. Mean ↑

b. Median ↔

c. Range ↑

d. IQR ↔

e. Standard deviation ↑